Heterogeneous and negative as are Dr. Nansen's opinions that Wineland is a myth based on the Fortunate Isles, yet they are well-considered and merit close attention. His conclusions are briefly as follows: (1) Adam of Bremen is untrustworthy. (2) The oldest Icelandic authorities mention Lief Ericson unconnected with Wineland. (3–4) Lief's discovery is not mentioned until the 13th century, and definite statements as to Wineland only appear at the end of that century. (5) The Flateyjarbok narratives differ widely from the earlier. (6) The first saga contains only mythical and borrowed matter. (7–8) The Greek myths mention wild-growing vines and wheat in the Fortunate Isles. (9) The association of wine and wheat with North America is artificial. (10–15) Before the 11th century Ireland had myths of happy lands to the west in the ocean, thus affording a common basis for the sid-people of Ireland, the elf-people of Iceland, and the huldre-people of Norway. (16–17) The Norse name "*Vinland hit Gooa*" is a translation of "*Insulae Fortunatae.*" (18) The name of the inhabitants, Skraelings, indicates that Wineland was a fairy country. (19) Icelandic and Norse geography connecting Wineland with Africa, is evidence of its identity with the Fortunate Isles. (20) Though the saga of Eric the Red and the "*Groenlendinga-pattyr*" contain no reliable data as to the discovery of America by the Greenlanders, yet the mention of the arrival of voyagers from Markland in 1347, and other references, show that they must have reached the coast of America. (21) Hvitramanna-land is a mythical country, modified by christian beliefs. (22) "Finally, from the ancient Greeks to the Icelanders, Chinese and Japanese, we meet with similar myths about countries out in the ocean and voyages to them."

The intense patriotism of Dr. Nansen in pushing to the broadest possible extent the importance, if not almost universal claims of superiority for Norway in arctic explorations may be viewed as pardonable, though his views will not always gain acceptance.

In his general line of argument it may be said that similar methods by hostile critics would work havoc with many of his finely spun and vigorously advocated conclusions. It is to be regretted that so scholarly a work should not invariably display that fine spirit of judicial calmness, and considerate acceptance of the opposing views, so general in these days on subjects widely controverted. Argument is not made convincing, nor acceptable even, through describing the conclusions of other historical students and investigators as "pure guess work," "absurdity" or as "imaginativeness."

It is to be hoped that the distinguished author will soon contribute a work wherein arctic work shall be fully correlated and brought down to the conquest of the two poles.

A. W. GREELY

Cocoa and Chocolate. Their Chemistry and Manufacture. By R. WHYMPER. Philadelphia, P. Blakiston's Son & Co. Octavo. Pp. xii+319 and index. $5.00.

This work, which does credit to author, printer and publisher, is a striking example of the development that characterizes present-day science. Not many years ago a few pages in a work on food production or food analysis would have been deemed sufficient for the subject.

The author brings to the consideration of the subject matter of the book not only experience and scientific judgment but an earnest interest in the cacao products and we can have but little doubt that he enjoys a cup of "cocoa," in which enjoyment the reviewer shares.

Brief but comprehensive chapters are given on the history of the introduction and use of cacao products, on the botany and nomenclature of the several preparations, after which the growth, manufacture and marketing are considered. A table shows comparison of the calories of cacao preparations with those of common food articles by which it appears that chocolate has three times the heat energy of an equal weight of hen's eggs and nearly double that of peas and bread. Of course, these comparisons, considered by themselves,

will be quite misleading, as no account is taken of the relative cost of the articles—surely an important matter in these days—but also the fact must be borne in mind that in the free consumption of cacao-products a notable amount of an alkaloid is introduced while in standard foods no such ingestion occurs. Notwithstanding the high calories and even high protein content of cacao-products we should err in regarding them as more than beverages and confections.

We are informed that while *Theobroma cacao* is the principal source of cacao-products, several other species contribute a not important share. It is satisfactory to note that while commercial conditions necessitate the use of the term "cocoa" as a name for the marketed products, the author emphasizes the fact that the correct title is "cacao" and uses this when speaking of the raw materials and also the separated fat, which is (very properly) termed "cacao-butter." Incidentally another important point is noted, namely, that the oil from the fruit of the *Cocos nucifera* should be termed "coconut oil" and not, as is often done, "cocoanut oil." For thus aiding in correct orthography Mr. Whymper deserves thanks.

The methods of cultivation, ingathering and curing are given in great detail, illustrated with many fine full-page photogravures. The machinery employed in manufacturing the several commercial preparations is also illustrated and described. Of course, the cacao plant is subject to diseases, but it is specially interesting to note that in many places its successful cultivation requires the association of other trees for shade, and that these latter sometimes communicate their diseases to the cacao nut. In this connection it is worth pointing out that it has been long known that sandalwood trees do not thrive when grown by themselves, and it was supposed that this is due to need of shade, but it has lately been proved by the investigations in India that sandalwood is a partial root-parasite. In Trinidad a particular luguminous tree is so commonly used as a shade for cacao that it is known as "Mother of Cacao."

The food chemist will find in this work a vast amount of important and interesting technologic and analytic data. The commercial forms of "cocoa" and "chocolate" are fully explained both as to preparation, composition, analytic examination and adulteration. Over one hundred pages are devoted to these topics, and the bibliography, a summary of which is given separately, covers a very wide range.

No important typographic errors have been noted. On p. 65, the date for the reference to *Chem. Zeit.* should apparently be 1897, instead of 1887.

The book is a timely and valuable contribution to the literature of an important topic.

HENRY LEFFMANN

SPECIAL ARTICLES

ELM LEAF CURL AND WOOLLY APHID OF THE APPLE

IT was with considerable astonishment while working over some elm aphids several winters ago that I found that I was unable to separate on structural characters certain collections of *Schizoneura americana* (causing and inhabiting elm leaf curl) from certain collections of *Schizoneura lanigera* (the troublesome woolly aphid of the apple). It seemed absurd to suppose that a species under such constant observation as the woolly aphid of the apple could be masquerading on our elms all these years without biological evidence of the fact having been chanced upon long ago.

However, the guess based on structural evidence, wild as it seemed, was worth following up and field observations were made during the next seasons. Spring migrants were observed to desert the elm leaves in the early summer, and fall migrants to leave the apple branches in the fall, but no conclusive data as to the destination of either were obtained in the field. Both migrations covered a rather extended time and the situation was especially complicated by the continuous presence of apterous forms on the apple (either on branch or root) all the year and of "*rileyi*" on the trunks of young elms during the summer.